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【物件名】

刊行物 1

利行物

【添付書類】

2 553

◎第十一屆年會(1B) 館藏研究會

•家用新舊公報 (Y2) 平3-12510

◎社名 CI. A. 购物凭证号 店铺编号 00226 平成3年(1991)3月25日
P-41-F-21/00 8403-2C

(全四)

- ◎申請の名称 放射能汚染地における測定器の低価化防止装置
 ◎提出者 鹿児島県 -42269 ◎公報 第36-14872
 ◎出願日 昭和36(1961)3月1日 ◎発明日昭和36(1961)9月30日
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 ◎公 案文 類別 36-14872 (J.P.A)

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卷之三

本章は主に新規印刷機において用いられる新しい技術と技術が組み合わさる装置に関するものである。

枚刷機の印刷にはオフセット印刷機、ドライオフセット印刷機など多くの種類があるが、これはいずれも静止とインク供給とを有する印刷装置の仕組みはおもに静止装置と回転式印刷装置には、この間に静止装置と回転式装置が組み合せられており、その組合によって一枚ずつ送り込まれる紙が静止され、静止装置によって紙にインクが付着される。そして紙によって一枚ずつ送り込まれる紙が静止され、静止装置によって紙にインクが付着される。

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標準で検査することになるので、この点が第1回に示すようにばたつくと、検査精度が著しく低下する原因となることがある。

このように各層の被毛層が生長するので、結果、両脇の被毛部表面にブナシを形成。これをばたつこうとする様に搔かせたり抑えるようにすることが実現されたが、第1回で明らかのように、ラットの爪先部は被毛層よりも薄いので、ブナシが爪床まで剥離的に剥かれることになり、ブナシの永久性が維持できなくなったり皮膚炎を発するという不具合があつた。

本セミナーは以上のような点に着眼されたもので、開講の最初に先生を招き講話を通じて、常に感じるブランクを活用したブランク対応の実践的訓練をさせるとともに、このブランク間に感じたかみやへこみ感覚のこころの実感上の心のまぶす間に伴う問題とさせ、開講の最後にしたがってブランクに対する理解を深めさせることによって、講義時のブランクを既に認識させておきながら対応せるとともに、不必要な時にはブランクを新鮮な心から離れて、日常的な担当によるブランクの現象を防ぐ対付した開講の初期段階における開講の最初の段階での防止策を説明するものである。以下、本セミナー実施要領について詳細に説明する。

有关肾脏疾病的治疗与护理

例を示し、第2図はこれを実施した印刷機の概要図、第3図は紙あわせ防止装置の概要側面図、第4図は紙あわせのA-A断面図、第5図は紙あわせ

図の印鑑は複数、第 9 図は第 3 図の C 様式大正印鑑である。図において、検査用印鑑 1 は、鉛印鑑 2 と、検査印鑑 3 と、印刷印鑑 4 と、

および昇降装置 15 を備えており、給油装置 12 には、前工場で給料が印刷された紙等の底 11 を覆してその基部により自動的に上昇する傾

台17が設けられている。また、後述装置13の上部部には前記装置12によつて盤板18上へ装置17が引出された部19を覆めて構成する

次につづき出された第11頁を見て理解するスライド
ング18が配置されており、その下方には一对の
抜き刷り20, 21が、互に両面を対映させて配置

日本に就設されている。これらの物が別20、21の外周切欠部内には、カム機構で閉鎖する複数個の爪が軸方向に並列して設けられており、スイング19の位置によって開放された時16を粗め

備えたのち、第1回の矢印方向への第2軸によ

紙1を図2、2の面下へ書き付けながら拾選するように書き込まれている。また、各面の書式は、2の面裏面では、墨書きされた紙1の裏面同様に鉛筆で不正確な書き方をして書きを充てすが、図2、2の面それでは取り除いている。紙面3の1のめ印下に隣、図2をもって記述された紙面2と並んで、左一列のスクリプト2とが書き入れられており、このスクリプト2と、紙面4(1のめ印下)と、紙面5(1のめ印下)と、紙面6(1のめ印下)には、左一列のスクリプト2との間に、隣、矢印で示す方向に進行する選択テンプレート2が書き込まれている。

印明映版14には、両面に番号器と印字用版とがそれぞれ設置された版面30、31が上下に配置されアゲル。中央部に設けられた版面32に

は、これら両版圖38, 31と前記版圖27とが対照されている。符号33, 34で示すものは、版圖27に示す如き複数の被覆をもつて

は、田畠3-2に剪枝対策された植し樹であって、植し樹3-4に対応する剪枝調3-5と同軸上の左を29 一方のスプロケット3-9と、挿絵位置1-6のスプロ

ロケット37との例には、図に矢印で示す方向に走行する折紙チャーン38が表示されている。

されて落下する紙1枚を覆する紙張台38、40が設置されており、また、スプロケット37の下方には、後述図22、23からの不正

紙被由信号によって排紙方向を切替えられて排出される不正紙やその他の取り扱などを受ける機器受け41が設けられている。

99 確認以上のように構成された検定結果判明後1
1には、全体を番号4.2で示す記入用紙

が、検査位置13と印刷位置14とにそれぞれ置けられており、以下、印刷位置14に取せられたものについて説明する。前回位置2は、左右の

フレーム4.3。4.4に軸受4.5を介して駆動され、その一方の軸端部には、大径部4.6と小径部4.8とを有するカルセドニン鋼で構成された

小径高4.9mと有するカム面を両面に施したフレーム型脱着用カム49が、フレーム43に開閉して軸着されている。一方、図に矢印Dでそれ等

④ れ示す方向に回転する圧縮部2と取付部3との回転拘束部近傍には、剛性方向と平行するブランケット47が、ブリュエ48を介し左右のフレーム

3, 4 に回転室が複数されており、このブシタ 4 T 上には、ブシタ 4 B が置かれている。

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ブラシ48は、圧縮23とは逆回転に形成されて
ブラシ47に固定されたカム50と、このカム
50より前駆輪12に押付されたことと組合せ
のブラシ48と51とが形成されており、ブラシ48
と51ととなって動作するようになってお
る。また、ブラシ47の一方には、前駆輪にこ
れり2が形成されたカムレーベル53がフレーム4
2に固定して固定されており、ころり2は、カム
4とのカム4間に固定されている。カムレーベル53
の中央部に一頭を配置されたねじ14の位置は、
フレーム42に被覆されたフランジ付スクリュ
5の側面に標記目印に合わせておらず、スクリュ
5とはねじ14との距離との間に、ごくわずか
カム4とのカム4間に固定される方向の距離をカ
ムレーベル53付近で前駆輪ゴム51が引か
れて伸びている。そして、ころり2がカム50の小
径部55に接触したときに、ブラシ48と51
の先端が圧縮23上の頭部56の面に接触し、また
大径部46aに接触したときに圧縮23の頭部から
離脱するようになされている。さらに、操作側
のフレーム42には、前駆輪23と前駆輪カム50
とで前方への距離を確保された頭部56が、
ブラシ47の方に方向を変換して動作する方向のレ
バー10が接着されている。前駆輪カム50は、
前駆輪51の頭部にして張り出されたカム4のカ
ム面を介しておらず、その把手側面には、切込み
1が受けられている。また、ブラシ47に接
触されて逆回転のころり2を前駆輪カム50のカム
面に固定されたカムレーベル53と、前駆輪ゴ
ム51およびごくわずかにころり2をカム4に固定させ
る方向の距離を付与されている。そして、操作
レバー10でカム50を頭部56に向こらり2と組
合することで逆回転することにより、前駆輪カム50
の頭部にかかる力を逆時計48の先端が頭部
から離脱するように離脱させている。

全体を行き54で示すものは、圧縮23の外周
切込み部55内に設けられた切入爪装置であつ
て、頭部56にわたる爪部58上に設けられた頭部
部の爪59を備えており、頭部部58の頭部56は、
爪59との間を180度回転する爪部57が安
置されている。また、爪59は、爪部57によ
って爪先58と爪部57に圧縮23する方向の距離力を付与
されている。

なお、前駆輪防護装置42は、これとは逆回
転のものが、圧縮23、21の上方にも設け
られている。

以上のように構成された前駆輪23頭部の動作
を実現するため頭部23が削除され頭部21上に設
けられた頭部18は、前駆輪12によって逆圧縮1
8上へ1度つ送り返され、スイング19に運ば
られてその頭部に取り留められた頭部23の頭部
21に延えられる。この頭部21は前駆輪2
0、21、延し羽4と前駆輪23と等で逆圧縮23
スイング20により逆圧縮14へ向けて運ばさ
れ、圧縮23の頭部21が逆圧縮23に延え替わる
ことで逆圧縮23が形成される。そして、延し羽4、圧縮23と逆圧
縮23、81との間を通過するとときに逆圧縮23と
逆圧縮23の逆圧縮23が形成され、延し羽4、81と逆圧縮
23を延して逆圧縮エーンズ38まで逆圧縮23へ向
けて運ばれる。頭部21が逆圧縮23は、逆圧縮エ
ーンズ38から離脱されて落下し、逆圧縮23と4
とへ逆圧縮23とに付着し離脱して逆圧縮23に運ばれ
る。そして、頭部21の逆圧縮23より逆圧縮23の不規則所
を逆圧縮23、23が通過して信号を発する
と、この信号によって逆圧縮23のタイミング頭部23
81、31が頭部21から離脱し、不規則23には音
号と車の回転方向が表示される。また、この信号
によりさらに逆いたタイミング頭部23エーンズ38
8の逆圧縮23が運ばれ、不規則23は前駆輪23
41上へ運搬される。

以上のようとして行なわれる逆圧縮23において
は、頭部21によって逆圧縮23と逆圧縮23との接觸点
を過ぎると、延し羽4の根元部が逆圧縮23で離
かられ頭部21、32の逆圧縮23によってごくられら
とともに、圧縮23の逆圧縮23力で逆圧縮23で離
ばたここうとする。しかししながら、本実施では、
ブラシ48の逆圧縮23の頭部56に逆圧縮23されて
てこれを圧縮23の頭部に圧縮23しているので、
頭部56が頭部21上に乗りたまうことがあることがな
い。そして、ブラシ48の頭部56を抜けたこと
により、ころり2がカム50の小径部55に對
向したときにのブラシ48の把手側面のコイル
ねじ33の弾力によつて頭部56に吸引される。大
抵当46aに当たったときに逆圧縮23から逆圧縮23によ
うになつてゐるので、カム48の逆圧縮23により
頭部56が逆圧縮23、32の接觸点を通過するわ

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高企 等 1-1 题

か前にころりと小柱面46Bに対向し熱めるようにしておけば、ブラシ48は必要なときにのみ紙18を圧接し、ブラシ48と爪49との接触することがない。そして、ブラシ48で紙18を押す必要があるのは、紙18が紙面を離脱する下の

場合であって、これらを半導体素子として用いて、
くつ離れて「ランクシ 4 の機能がない」そこで、
この基板には動作レバー 1 と操作して電極カム
8 を回転コイルばね 11 の作用力によって固定
させ、初期位置 11 をこらす 2 に向けてすると、ラ
ンクシ 4 の状態が自然から離れて、ブリッジ電極用カ
ム 4 および 5 は图 2 と同様にたたむを可能とする。
この場合カムレバー 6 は回転コイルばね 11 で付
着されているので、图 2 と初期位置 11 の場合
が説明され得ることなく、原発明とこの

状態を保持することができる。

以上は、本研究を純正印刷時に実施した例を示したが、第7図に示すようなオフセットと日本式の複数回複数色印刷では、

84とモーフ群とからなるインキ装置が等量自在なフレーム85内に吸収されそれぞれ封鎖されている。85は、画面面の水分なしインキを抜き取るワイヤリングモーラである。そして前面記述された防止装置42は、オフセット印刷装置74の圧縮61とゴム刷毛82との間隔を均一に保つように設けられている。

このような問題において、月の運び谷により印加電圧を7.3Vで始動された結果は、印加7.0Vと全く同じである。これは、印加7.0Vと同様にモード切換回路によってモード切換が行われるときにオフヒート回路と同時に3つの二極管回路が駆動されて遮断される。そして、この遮断後は、印加電圧をナフサ7.0Vまで印加すれば、印加電圧がナフサ7.0Vとそれ以上では、車輪に作用される力の強さに影響を与えることがなくなり、同時に印加電圧7.4V、7.5Vにおけるモード切換回路がモード切換回路の運転停止である。この遮断を実現している。さらに、印加7.0Vと印加7.3Vと印加7.5Vとの寸法差がHDDCである。しかし、印加電圧7.0Vと印加電圧7.3Vと印加電圧7.5Vの運転条件を比較すると、印加電圧7.0Vと印加電圧7.3Vの運転条件は、印加電圧7.5Vの運転条件よりも運転条件が厳しくなる。

正しているといつてお話を伺っている。
そして、証明はある程度4回は、監査結果とともに
比較作成をするが、個人用2回監査結果よりも
方に受けられたこの取扱いにおいては、
と田辺さん1との会話から確認された低減が
下がるうなうるので、プライバシの点でこ
そも言えることができた。証明はある程度4回が最も
有効に作用する。
なお、本件は、各款契約実績のほかに、各
のオプション開設や監査実績などの従業員
取扱いにも同様に実施できることは言うまでも

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85 以上の原因により重らかさのように、本考案に
れば、被覆部を取扱いの簡便性における紙など
防止装置において、周囲部の搬送装置を固定化し
させて搬送方向に沿るブラシを回転自在な
ラジ輪で支持させるとともに、このラジ輪に

④ 定したカムレバーの位置のところを削除上のカム面にばね部材で止めさせ、頭の削除三したつてブラシを頭面に密着させよう構成となりにより、無操作状態が頭部表面が削除されようのを防ぐことが出来、紙のばたつき

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よる汚れや異物の侵入を防止することができるもので、由来物の品質が手早く向上し、既存の歯車部が脱離するとともに、ブラシを折定のタイミングで脱離部から離脱させることができるので、ブラシが脱離すると下部する歯車とブラシの耐久性が著しく向上する。

既存の構造の説明

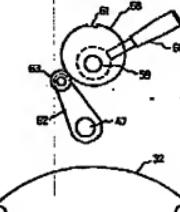
第1図は先端の仕事場で行割機の吸え替え時にかける車の車輪の構成図。第2図なし。第3図は本考案による車輪構成の構成にかかる構成部の概要図。第4図は第3図のC部拡大正位図。第5図は本考案を実施したオフセット・ビアンディング構造の概要である。

10——軸、32——左側、42——紙あわせ
右側、46——ブラシ吸え用カム、48——一
大歯車、49.5——小歯車、47——ブラシ
軸、49——ブラシ、51——ブラシ本体、52
ロ——ころ、53——カムレバー、56——左側コ
イムビン。

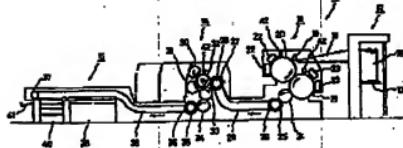
第1図



第6図



第2図



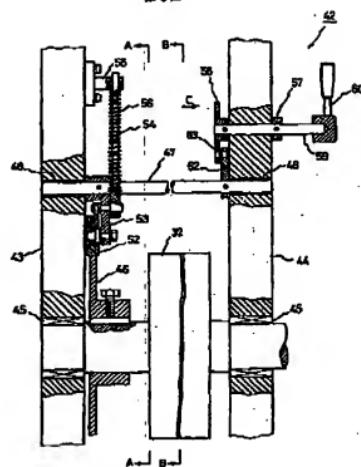
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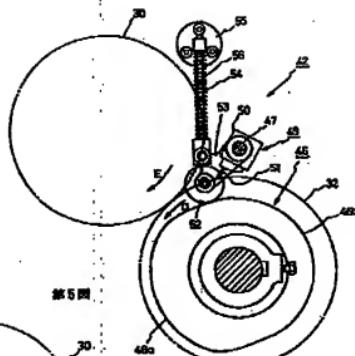


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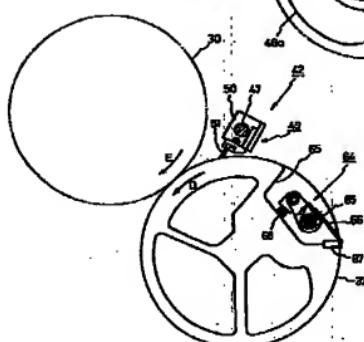
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高分·预测·万能

第11页



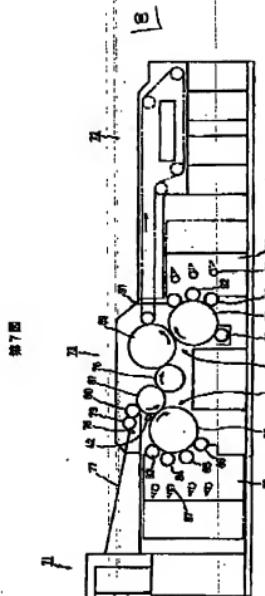
第五圖



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案少 平 3-12510



TRANSLATION of Japanese Utility Model Publication No. 03-012510

Title of the Invention: Device for Preventing a Sheet of Paper from Falling into Disorder in a Sheet-fed Rotary Printing Press

Publication Date: March 25, 1991

Utility Model Application: No. 57-42239

Filing Date: March 24, 1982

Applicant: Komori Co., Ltd.

SCOPE OF CLAIM OF THE UTILITY MODEL

A device for preventing a sheet of paper from falling into disorder in a sheet-fed rotary printing press comprising: a brush shaft pivotally arranged in parallel with a direction of a drum shaft being close to a circumferential face of the drum; a brush fixed to the brush shaft and extended in the direction of the drum shaft while tips of hair are being contacted with a surface of the sheet of paper conveyed on the circumferential face of the drum; a cam lever fixed to an end portion of the brush shaft, a roller being attached to an idle end portion of the shaft; a brush attaching and detaching cam having a cam face formed out of a large diameter portion and a small diameter portion to be contacted with the roller, being fixed to an end portion of the drum shaft; and a spring means for giving torque in a direction, in which the roller is made come into pressure contact with the cam face, to the cam lever.

DETAILED DESCRIPTION OF THE INVENTION

The present invention relates to a device for preventing a trailing end portion, which is not held, of a

sheet of paper seized by a pawl from falling into disorder in a sheet-fed rotary printing press.

There are many types of sheet-fed rotary printing presses such as an offset printing press, intaglio printing press, a dry offset intaglio printing press, an inspection printing press and so forth. Any of these printing presses includes: a printing device having a group of printing drums and an ink feeding device; a sheet supply device arranged before the printing device; and a sheet discharge device arranged after the printing device. The inspection printing device further includes: an inspection drum; and an inspection mechanism. While a leading end portion of a sheet of paper, which has been sent out by the sheet supply device one by one, is being seized by pawls of the printing drum, the inspection drum and the conveyance chain, the sheet of paper is conveyed.

However, in this sheet-fed rotary printing press, the behavior of a sheet of paper, which is wound round a circumference of the drum after the leading end portion has been seized by the pawl, causes some problems. Fig. 1 is a schematic illustration showing an offset printing press which is taken up as an example. The sheet of paper 3, which has been shifted from the seizure by a pawl of the swing device in the front stage portion or from the seizure by a pawl of the delivery drum to the seizure by the pawl 2 of the pressure drum 1, passes between the pressure drum 1 rotating in the arrow direction and the rubber drum 4 and is wound round a circumferential face of the pressure drum 1. Therefore, an image is transferred from the rubber drum 4 onto a surface of the sheet of paper 3 on the rubber drum 4 side. In this way, printing is executed. However, as

shown in the drawing, under the condition that a leading end of the sheet of paper 3, which is seized by the pawl 2, has passed through a contact point between both drums 1, 4, since a second half portion of the sheet of paper 3 is not held by anything, when both drums 1, 4 are rotated at high speed while the sheet of paper 3 is being given a printing pressure by both drums 1, 4 so that printing can be executed, the sheet of paper 3 is ironed in a direction of the trailing end of the sheet of paper by both drums 1, 3. At the same time, the sheet of paper 3 is waved by a centrifugal force and flapped. Therefore, the sheet of paper passes while it is flapping at a position 30 to 50 mm higher than the circumferential face. Accordingly, a portion of the sheet of paper 3 comes into contact with a circumferential face of the rubber drum 4 and ink adheres onto the sheet of paper 3. Therefore, the sheet of paper 3 is stained with ink and further a portion of the image is transferred. When the adhesion of ink is made onto the sheet of paper 3 as described above under the condition that the sheet of paper 3 is closely contacted with the circumferential face of the rubber drum 4, no problems are caused. However, when the adhesion of ink is made onto the sheet of paper 3 while the sheet of paper 3 is flapping as shown in the drawing, a picture formed by the adhesion ink deviates a little from a picture which will be normally formed being transferred later. Therefore, double printing is made. The above explanations are made in the case of the printing drum. In the case of the inspection drum, a sheet of paper wound round a circumferential face of the drum is inspected by the inspection mechanism. Therefore, when this sheet of paper is flapped as shown in Fig. 1, the

inspection accuracy is remarkably deteriorated, which will become a cause of malfunction.

Since various problems are caused as described above, it is conventional that a brush is provided before the contact portion of both drums and contacted with a sheet of paper which is going to flap, so that the flapping sheet of paper can be suppressed. However, as shown in Fig. 1, a tip portion of the pawl 2 is higher than a surface of the sheet of paper 3. Therefore, the brush is periodically snapped by the pawl 2. Accordingly, the durability of the brush is very low and it is necessary to replace the brush very frequently.

The present invention has been accomplished in view of the above points. A brush extending in an axial direction of a drum, the tips of hair of which are contacted with a surface of a sheet of paper conveyed in a circumferential portion of a drum, is supported by a brush shaft capable of freely rotating. A roller attached to an idle end portion of a cam lever fixed to this brush shaft is made to come into pressure contact with a cam face of a cam provided on a drum axis by a spring member. According to the rotation of the drum, the brush is attached to and detached from a surface of the sheet of paper. Due to the foregoing, only when necessary, the brush is contacted with the surface of the sheet of paper so that the sheet of paper can be prevented from falling into disorder. When unnecessary, the brush is separated from the surface of the sheet of paper so that the brush can not be abraded by the contact with the pawl. The present invention provides a device for preventing a sheet of paper from falling into disorder in a circumferential portion of a drum in a sheet-fed rotary

printing press. Referring to drawings, an embodiment of the present invention will be explained in detail below.

In the present embodiment, the present invention is applied to an inspection rotary printing press. Fig. 2 is a side view showing an outline of a printing press to which the present invention is applied. Fig. 3 is a developed sectional side view of a device for preventing a sheet of paper from falling into disorder. Fig. 4 is a sectional view taken on line A - A in Fig. 3. Fig. 5 is a sectional view taken on line B - B in Fig. 3. Fig. 6 is an enlarged front view taken in a direction of C in Fig. 3. In the drawing, the inspection rotary printing press 11 includes: a sheet supply device 12; an inspection device 13; a printing device 14; and a sheet discharge device 15. The sheet supply device 12 has a sheet loading table 17, on which sheets of paper 16 such as bank notes having a picture printed in the pre-step are loaded, and when a weight of the loaded sheets of paper is reduced, the sheet loading table 17 is automatically raised. In an upper end portion of the inspection device 13, the swing device 19 is arranged which seizes and swings a sheet of paper 16 which has been sent out onto the delivery plate 18 by the sheet supply device 12 one by one. In a lower portion of the inspection device 13, a pair of inspection drums 20, 21 are pivotally arranged in such a manner that the circumferential faces of the inspection drums 20, 21 are opposed to each other. In outer circumferential cutout portions of these inspection drums 20, 21, a plurality of pawls, which are opened and closed by a cam mechanism, are arranged in the axial direction in parallel with each other. After the pawls have seized the sheet of paper 16

conveyed by the swing 19, when the inspection drums 20, 21 are rotated in the arrow direction shown in Fig. 1, while the sheet of paper 16 is being wound round the circumferential faces of the drums 20, 21, the sheet of paper 16 is conveyed. In the neighborhoods of the circumferential faces of the inspection drums 20, 21, the inspection mechanisms 22, 23 are respectively arranged which inspect pictures on both sides of the conveyed sheet of paper 16 and detect a defective sheet of paper and emit a signal of detection. On the same axis as that of the sheet taking drum 25 arranged in an oblique lower portion of the inspection drum 21 through the delivery drum 24, a pair of sprockets 26 are attached. Between these sprockets 26 and a pair of sprockets 28 on the same axis as that of the sheet supply drum 27 of the printing device 14, the conveyance chain 29 traveling in the arrow direction shown in the drawing is provided.

In the printing device 14, the print drums 30, 31, on the circumferential faces of which the numbering machine and the seal print are respectively attached, are provided in the vertical direction. The pressure drum 32 arranged in the central portion is opposed to and contacted with both the print drums 30, 31 and the sheet supply drum 27. Reference marks 33, 34 are delivery drums opposed to and contacted with the pressure drum 32 in order. Between a pair of sprockets 36, which are arranged on the same axis as that of the sheet discharge drum 35, opposed to and contacted with the delivery drum 34, and the sprockets 37 of the sheet discharge device 15, the sheet discharge chain 38 traveling in the arrow direction shown in the drawing is provided.

In the sheet discharge device 15, the sheet loading tables 39, 40, on which the sheets of paper 16 released and dropped from the sheet discharge chain 38 are loaded, are arranged in the longitudinal direction. In a lower portion of the sprocket 37, the discharged sheet reception 41 is provided which receives defective sheet of paper discharged when a discharging direction is changed over by a defective sheet detection signal sent from the inspection mechanisms 22, 23 and also receives other sheets of paper to be drawn out.

In the inspection rotary printing press 11 composed as briefly described above, the devices for preventing a sheet of paper from falling into disorder, the entire devices of which are represented by reference mark 42, are respectively arranged in the inspection device 13 and the printing device 14. The device for preventing a sheet of paper from falling into disorder arranged in the printing device 14 will be explained below. The pressure drum 32 is supported by the right and left frames 43, 44 through the bearings 45. To one shaft end portion, the brush attaching and detaching cam 46, on the circumferential face of which a cam face having the large diameter portion 46a and the small diameter portion 46b is provided, is attached being adjacent to the frame 43. On the other hand, in the neighborhood of a rotation biting portion of the pressure drum 32 and the print drum 30 rotating in the directions of the arrows D and E shown in the drawing, the brush shaft 47 extending in parallel with the drum axis direction is pivotally supported by the right and left frames 43, 44 through the brush 48. On this brush shaft 47, the brush 49 is provided. The brush 49 includes: a holder 50, the

length of which is substantially the same as that of the pressure drum 32, fixed to the brush shaft 47; and a brush body 51 the length of which is substantially the same as that of the holder 50, detachably held by the holder 50. The brush 49 is rotated integrally with the brush shaft 47. To one end of the brush shaft 47, the cam lever 53, to the idle end portion of which the roller 52 is attached, is fixed being adjacent to the frame 43. The roller 52 is opposed to and contacted with a cam face of the cam 46. The other end portion of the spring shaft 54, one end of which is attached to the central portion of the cam lever 53, is slidably supported by a shaft hole of the stud 55 having a flange provided in the frame 43. Between the stud 55 and the step portion of the spring shaft 54, the compression coil spring 56 is provided which gives torque for making the roller 52 come into pressure contact with the cam face of the cam 46 to the cam lever 53. When the roller 52 is opposed to and contacted with the small diameter portion 46b of the cam 46, the tips of hair of the brush body 51 are contacted with a surface of the sheet 16 of paper on the pressure drum 32. When the roller 52 is opposed to and contacted with the large diameter portion 46a of the cam 46, the tips of hair of the brush body 51 are separated from a surface of the sheet 16 of paper on the pressure drum 32. Further, in the frame 44 on the operation side, the operation shaft 59, the movement in the axial direction of which is regulated by the collar 57 and the attaching and detaching cam 58, is pivotally supported being positioned at an upper position of the brush shaft 47. In the outer end portion, the operation lever 60 for operating the rotation is attached. The attaching and

detaching cam 58 has a circular cam face which is eccentric with respect to the axial center of the operation shaft 59. In the maximum radius portion of the attaching and detaching cam 58, the cut groove 61 is provided. Reference numeral 62 is a cam lever attached to the brush shaft 47 and having the roller 63 at an idle end portion in such a manner that the roller 63 can be opposed to a cam face of the attaching and detaching cam 58. The cam lever 62 is given torque in a direction by the compression coil spring 56 so that the roller 63 can be contacted to the cam face with pressure. When the cam 58 is rotated by the operation lever 60 until the cut groove 61 is engaged with the roller 63, the tips of hair of the brush 49 are always separated from the surface of the sheet of paper irrespective of the rotation of the cam 46.

Reference numeral 64 represents a seizing pawl device provided in the cutout portion 65 on the outer circumference of the pressure drum 32. The seizing pawl device 64 has a plurality of pawls 66 arranged in parallel with each other on the pawl shaft 65 extending all over the drum length. On a wall face of the cutout portion 65, the pawl table 67 for seizing the sheet 16 of paper between the pawls 66 is attached. The pawls 66 are given torque by the pawl spring 68 in a direction so that the forward end portions of the pawls can be contacted to the pawl table with pressure.

In this connection, the substantially same devices for preventing a sheet of paper from falling in disorder as the device 42 described above are also provided in upper portions of the inspection drums 20, 21.

Operation of the inspection rotary printing press

composed as described above will be explained below. The sheets of paper 16, on which pictures have been printed, loaded on the sheet loading table 17 are sent out one by one onto the delivery plate 18 by the sheet supply device 12 and seized by the swing 19 and conveyed by a swinging motion of the swing 19. After that, the sheet of paper is seized by a pawl of the inspection drum 20. This sheet 16 of paper passes through the inspection drums 20, 21, the delivery drum 24 and the sheet taking drum 25 and is conveyed toward the printing device 14 by the conveyance chain 29. Then, the sheet of paper is seized by the seizing pawl device 64 of the pressure drum 32 and conveyed. When the sheet 16 of paper passes between the pressure drum 32 and the print drums 30, 31, the number and the seal are printed on a surface of the sheet 16 of paper. Then, the sheet 16 of paper is conveyed toward the sheet discharge device 15 by the sheet discharge chain 38 through the delivery drums 33, 34 and the sheet discharge drum 35. The conveyed sheet 16 of paper is released and dropped from the sheet discharge chain 38 and alternately loaded onto the sheet loading tables 39, 40 being changed over for a predetermined quantity of sheets of paper. When a defective portion on the surface side and a reverse side of the sheet 16 of paper is detected by the detection mechanisms 22, 23 and a detection signal is emitted, the print drums 30, 31 are separated from the pressure drum 32 being based on the signal after a predetermined timing has passed. Therefore, no number and seal are printed on the defective sheet of paper. At the more delayed timing, a pawl release position of the sheet discharge chain 38 is changed over and the defective sheet of paper is discharged

onto the discharge sheet reception 41.

In the printing work executed in this way, as described above, when the seizing pawl device 64 of the pressure drum 32 seizes the sheet 16 of paper and passes through a contact point of the pressure drum 32 and the print drum 30, since the second half portion of the sheet 16 of paper is not held, the sheet 16 of paper is ironed by the printing pressure given by both the drums 30, 32 and further waved and flapped by a rotary centrifugal force given by the pressure drum 32. However, according to the present device, since the tips of hair of the brush 49 come into contact with a surface of the sheet 16 of paper so that the sheet 16 of paper is made to come into pressure contact with a circumferential face of the pressure drum 32. Accordingly, there is no possibility that the sheet 16 of paper is waving and flapping. Since the brush attaching and detaching cam 46 is provided, only when the roller 52 is opposed to the small diameter portion 46b of the cam 46, the tips of hair of the brush 49 are contacted with a surface of the sheet of paper by an elastic force of the compression coil spring 56. When the roller 52 is opposed to the large diameter portion 46a of the cam 46, the tips of hair of the brush 49 are separated from the surface of the sheet of paper. Therefore, when it is set by the phase setting of the cam 46 that the roller 52 starts opposing to the small diameter portion 46b right before the pawl 66 passes through a contact point of both the drums 30, 32, the brush 49 comes into contact with the sheet 16 of paper only when necessary and there is no possibility that the brush 49 and the pawl 49 are contacted with each other. Only when the thickness of a sheet of paper is not more

than 0.1 mm, it is necessary for the brush 49 to push the sheet 49 of paper. When the thickness of a sheet of paper is larger than that, there is no possibility that the sheet of paper is waving and flapping. Accordingly, it is unnecessary to use the brush 49. Therefore, in this case, the operation lever 60 is operated and the attaching and detaching cam 58 is rotated resisting an elastic force of the compression coil spring 56 and the cut groove 61 is opposed to the roller 63. Then, the tips of hair of the brush 49 are separated from a surface of the sheet of paper. Accordingly, the brush attaching and detaching cam 46 is idly rotated while the roller 52 is being separated from it. In this case, since the cam lever 62 is pushed by a pushing force of the compression coil spring 56, an engagement of the roller 63 with the cut groove 61 is maintained, that is, the roller 63 and the cut groove 61 are not disengaged from each other. While printing is being conducted on thick sheets of paper, this state can be maintained.

In this connection, the devices 42 for preventing a sheet of paper from falling into disorder provided in the inspection drums 20, 21 are operated in the same manner and it is possible to prevent the sheet 16 of paper from waving. Accordingly, there is no possibility that the inspection mechanisms 22, 23 are erroneously operated.

An example in which the present invention is applied to an inspection rotary printing press is shown above. However, it is possible to apply the present invention to a compound printing press in which offset printing and intaglio printing are combined with each other as shown in Fig. 7. The present invention can be more effectively

applied to this case. The constitution of this printing press will be explained below. In the printing device 73, which is composed in the substantially same manner as that of the printing press 11 described before and which is provided between the sheet supply device 71 and the sheet discharge device 71, the offset printing press represented by reference mark 74 and the intaglio printing press represented by reference mark 75 are longitudinally arranged through the delivery drum 76. Between the offset printing press 74 and the sheet supply device 71, the delivery plate 77, the swing 78 and the delivery drums 79, 80 are provided. The offset printing press 74 includes: a pressure drum 81 opposed to the delivery drum 80; and a rubber drum 82, the diameter of which is twice as large as that of the pressure drum 81, opposed to the pressure drum 81. The printing drums 83, 84, 85, 86 of four colors attached with the print are opposed to the rubber drum 82. Each printing drum 83, 84, 85, 86 is attached with an ink device having an ink pot 87 and a group of rollers. Each ink device is accommodated in the movable frame 88. On the other hand, the intaglio printing press 75 includes: a pressure drum 89, the diameter of which is twice as large; and an intaglio printing drum 90, the diameter of which is twice as large, opposed to the pressure drum 89. The intaglio printing drum 90 is attached with an intaglio print and opposed to the rollers 91, 92, 93 of three colors. Each roller 91, 92, 93 is attached with an ink device having an ink pot 94 and a group of rollers. Each ink device is accommodated in the movable frame 95. Reference numeral 96 is a wiping roller for wiping out redundant ink. The device 42 for preventing a sheet of

paper from falling into disorder described before is arranged in the neighborhood of the rotary biting portion between the pressure drum 81 and the rubber drum 82 of the offset printing press 74.

In this printing press described above, when a sheet of paper, which is supplied to the printing device 73 being seized by the pawl, passes between the pressure drum 81 and the rubber drum 82, offset printing of four colors is executed. When the sheet of paper passes between the pressure drum 89 and the intaglio printing drum 90 through the delivery drum 76, intaglio printing of three colors is executed on the same face as that of offset printing. Then, the sheet of paper is discharged. This printing press is advantageous as follows. In this printing press, a printing pressure adjustment is respectively singly executed in the offset printing device 74 and the intaglio printing device 75. Therefore, the printing pressure adjustment does not affect others. Further, the number of times of changing the seizure of the sheet of paper can be only two, which is advantageous for maintaining the accuracy of printing estimation. In this printing press, an angle formed by the delivery drum 76, the pressure drum 89 and the intaglio printing drum 90 is substantially 90°. Therefore, a printing pressure given at the time of intaglio printing does not change a distance between the centers of the delivery drum 76 and the pressure drum 89. Accordingly, the seizure of a sheet of paper can be stably changed.

The device 42 for preventing a sheet of paper from falling into disorder is operated in the same manner as that of the embodiment described before. However, in this

printing press in which the rubber drum 82 is arranged at a lower position of the pressure drum 81, since a trailing end of the sheet of paper, which has been released from the hold made by the delivery drum 80 and the pressure drum 81, is going to hang down, it is possible for the tips of hair to suppress the trailing end of the sheet of paper. Therefore the device 42 for preventing a sheet of paper from falling into disorder can be more effectively operated.

In this connection, of course, it is possible to apply the present invention in the same manner not only to the embodiments described above but also to sheet-fed rotary printing presses such as various offset printing presses and intaglio printing press.

As can be clearly seen in the above explanations, according to the present invention, in a device of preventing a sheet of paper from falling into disorder in a circumferential portion of a drum of a sheet-fed rotary printing press of the present invention, a brush extending in an axial direction of a drum, the tips of hair of which are contacted with a surface of a sheet of paper conveyed in a circumferential portion of a drum, is supported by a brush shaft capable of freely rotating. A roller attached to an idle end portion of a cam lever fixed to this brush shaft is made to come into pressure contact with a cam face of a cam on a drum axis by a spring member. According to the rotation of the drum, the brush is attached to and detached from a surface of the sheet of paper. According to the above constitution, it is possible to prevent a second half portion, which is not held while a sheet of paper is being conveyed, of the sheet of paper from waving on a drum surface. Therefore, it is possible to prevent

the stain of an image caused by flapping of the sheet of paper. Further it is possible to prevent the transfer of an image caused by flapping of the sheet of paper.

Accordingly, the quality of prints can be remarkably enhanced and a quantity of defective sheets of paper can be reduced. Further, since the brush can be separated from the circumferential surface of the drum at a predetermined timing, there is no possibility that the brush and pawls interfere with each other. Accordingly, the durability of the brush can be remarkably enhanced.

BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 is a schematic illustration for explaining the behavior of a sheet of paper at the time of changing the seizure of the sheet of paper in a conventional sheet-fed rotary printing press. Figs. 2 to 7 are views showing an embodiment of the device for preventing a sheet of paper from falling into disorder in the circumferential portion of the drum of the sheet-fed rotary printing press of the present invention, wherein Fig. 2 is a side view briefly showing an inspection rotary printing press in which the embodiment is executed, Fig. 3 is a developed sectional side view of the device for preventing a sheet of paper from falling into disorder, Fig 4 is a sectional view taken on line A - A in Fig. 3, Fig. 5 is a sectional view taken on line B - B in Fig. 3, Fig. 6 is an enlarged front view taken in the direction of C in Fig. 3, and Fig. 7 is a side view briefly showing an offset - intaglio compound printing press in which the present invention is executed.

16 . . . Sheet of paper

32 . . . Pressure drum

42 . . . Device for preventing a sheet of paper from

falling into disorder

- 46 . . . Cam for attaching and detaching a brush
- 46a . . . Large diameter portion
- 46b . . . Small diameter portion
- 47 . . . Brush shaft
- 49 . . . Brush
- 51 . . . Brush body
- 52 . . . Roller
- 53 . . . Cam lever
- 56 . . . Compression coil spring

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